Michigan Department of Community Health

MDCH

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LabLink

Laboratory Information from the Michigan Department of Community Health - Bureau of Laboratories

Vol. 4 No. 2 Fall 1998

Influenza Surveillance Activities 1998-99

Frances Pouch Downes, Dr.P.H.
Division of Infectious Diseases

The Michigan Department of Community Health (MDCH), Bureaus of Laboratories and Epidemiology will again this year coordinate influenza surveillance activities. This year laboratory activities will focus on systematic surveillance and will abandon the more traditional, less effective surveillance method of culturing non-representative samples. Viral culture services will be limited to support of a sentinel physician network, local health department outbreak investigations and a vaccine cost-effectiveness study among private company employees. Virus identification and typing will continue to be available to clinical laboratories which have isolated suspect influenza virus.

For the second year, the MDCH will provide active influenza surveillance through a network of 22 sentinel health care providers. These practices cover all geographical regions of the state and represent the types of practices where influenza would be commonly diagnosed. Pediatric, adult medicine, university health care, urgent care and nursing home practices are represented.

During the influenza season, each sentinel physician is asked to report disease activity directly to the Centers for Disease Control and Prevention (CDC). The data from all sentinel physicians are then merged and are available for national, regional and state-wide analysis through an INTERNET site.

In addition to reporting influenza-like disease activity, sentinel physicians are also asked to collect and submit respiratory specimens from patients with typical influenza-like illness at the beginning, middle and end of the winter months. Isolation of virus is critical in evaluating the adequacy of the components of the current vaccine and optimizing the subsequent vaccine formulation. The battery of testing used for these specimens also will provide identification of parainfluenza 1, 2, 3 and 4; respiratory syncytial virus and adenovirus. Viral culture and identification provides an indication of the annual impact of the many viruses which contribute to respiratory illness during the winter months.

MDCH will partner with the CDC and a private company to continue a placebo-controlled vaccine study to determine if immunization of healthy adults under 65 years of age decreases the rate and cost of influenza illness. The study will include 1200 salaried employees ages 18-64 years without contraindications to vaccinations or underlying respiratory conditions. Questionnaires will be distributed to determine the extent and consequences of respiratory symptoms. Specimens from ill individuals will be collected and shipped to MDCH for viral culture. Serum will be tested for influenza antibodies at CDC.

As a World Health Organization Collaborating Laboratory, MDCH will identify and type influenza strains isolated in clinical laboratories. MDCH is particularly interested in receiving influenza virus isolates from the beginning and end of the winter months.

Laboratory support of outbreak investigation will be limited to local health departments. A combination of culture and non-culture virus detection methods will be used to best address each situation and to contribute to the most accurate description of state-wide disease activity. Testing should be pre-arranged with Dr. Mary Grace Stobierski in Communicable Disease Epidemiology at (517) 335-8165. Local health departments are encouraged to report local clusters and case estimates of influenza-like illness to MDCH Communicable Disease Epidemiology. For laboratory technical assistance call Patty Clark at (517) 335-8102.

Region V Infertility Prevention Project

William Schneider
Enterics/STD/Chromatography Unit

Michigan Department of Community Health is an active participant in the Region V Infertility Prevention Project (RVIPP) whose mission is to reduce the prevalence of Chlamydia infections. Chlamydia trachomatis is the most frequently reported communicable disease in the United States with over four million cases occuring each year. It is estimated that 92,286 women in Michigan are infected with Chlamydia.

Chlamydia is often an asymptomatic sexually transmitted disease that, if untreated, may result in infertility, pelvic inflammatory disease, ectopic pregnancy or epididymitis. Chlamydia is the leading cause of pneumonia and conjunctivitis in newborns.

Region V includes the states of Michigan, Ohio, Indiana, Illinois, Wisconsin and Minnesota. Representatives from these states meet three times a year and hold conference calls to discuss appropriate Chlamydia testing and patient screening criteria, to define appropriate, effective Chlamydia testing methods and to compile statistical information from Chlamydia testing.

States in the region have combined their purchasing power to negotiate a favorable price for Chlamydia testing kits and reagents. Michigan saves thousands of dollars annually by participating with RVIPP combining the numbers of tests from our state with those from the region to get the best pricing possible. Over $250,000 was saved by the six states in the purchase of tests during the first year.

More importantly, states in the region have been able to aggregate Chlamydia testing data to determine the sensitivity and specificity of various tests and how they might be improved. Various studies have been undertaken in the region to help all of the participating states improve their testing.

Region V states finished a project last year using several cooperating sentinel sites designed to determine appropriate screening criteria for Chlamydia testing. The Michigan sentinel sites were Ingham County Health Department, District 10 Health Department and The Corner Health Center in Ypsilanti, Michigan. These sites collected behavioral data which was collated with behavioral data from the region to determine indications for testing. The appropriate screening criteria is age under 23, more than one sex partner, a sex partner with multiple sex partners, new sex partner in the last six months, history of STD or contact with an individual with STD. Family planning clinics will be asked to use these criteria to screen individuals for appropriate testing to attempt to get as much benefit from available funds as possible.

Participation with the Region V Infertility Prevention Project has benefitted Michigan citizens and public health workers by sharing information, improving testing, ensuring appropriate testing and stretching limited resources through a combined effort of regional members. This has been a well organized concerted endeavor to eliminate this cause of infertility. This effort has been coordinated by the Health Care Education and Training Office in Indianapolis, Indiana.

ENHANCED SURVEILLANCE FOR MENINGOCOCCAL DISEASE

Mary Grace Stobierski, D.V.M.
Bureau of Epidemiology

MDCH will be cooperating with the Centers for Disease Control & Prevention (CDC) on a two-year enhanced surveillance program for Meningococcal disease. The objective is to determine if US college students are at increased risk for meningococcal disease. In September 1997, the American College Health Association recommended that colleges and universities ensure that all students who want to be vaccinated have access to a vaccination program against meningococcal disease. This is a departure from the current ACIP recommendations endorsed by CDC.

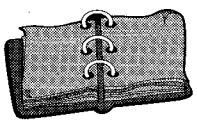
Thus, an enhanced program of surveillance for meningococcal disease among young adults will allow the disease rate to be calculated for college students. Local health departments throughout the state have received a supplemental case report form to be completed if a person aged 17-30 years is identified as being a college student. When a patient aged 17-30 years is identified by a laboratory as having meningococcal disease, the local health department should be contacted, so the standard report form could be completed. If the local health department determines that this person is a college student, the supplemental report form can also be completed. The information will then be conveyed to CDC via MDCH.

Laboratory Services Guide

The MDCH Bureau of Laboratories "Laboratory Services Guide" has been updated. All agencies previously provided with a copy of this document will receive replacement pages at no charge. Private laboratories requesting this document, or public health agencies requiring duplicate copies, may purchase them by sending a check for $20.00 payable to the State of Michigan at the following address:

Michigan Department of Community Health
Bureau of Laboratories, Quality Assurance Section
Building 44, Room 158
P.O. Box 30035
Lansing, Michigan 48909

Please note that we ship items such as this via UPS and therefore cannot ship to a PO Box number. If you have not received your replacement pages, phone Ron Dietz at (517) 335-9867.



ENHANCING DISEASE SURVEILLANCE IN MICHIGAN

Sonja Hrabowy and Karen MacMaster
Bureau of Epidemiology
Communicable Disease Division

The MDCH Communicable Disease Division has received funding from the Centers for Disease Control and Prevention to assist in improving the completeness and timeliness of communicable disease reporting within Michigan. This funding allowed us to develop The Local Health Department Epidemiology Capacity Building Program which began work in early September. Karen MacMaster, formerly a microbiologist with the MDCH Bureau of Laboratories and Sonja Hrabowy, formerly the epidemiologist for the Kalamazoo County Human Services Department, have taken responsibility for this project.

The design of this program is to work collaboratively with Michigan local health department communicable disease programs to improve upon current methods of communicable disease surveillance. The project will emphasize: (1) use of computer and telecommunication technology; (2) laboratory-based disease surveillance; and (3) targeted, population-based interventions rather than routine individual interventions. Due to the uniqueness of each local health department and the diverse resource levels, an individualized approach will be used to enhance reporting at the local level.

We have started on-site visits and are meeting with communicable disease staff at local health departments throughout Michigan. The purpose of these visits is to gain an understanding of the ability of each facility to conduct surveillance activities based upon available resources, methods of reporting and the availability and use of software programs for data analysis and disease surveillance. We are also taking this time to gather information on how we can assist departments in improving disease reporting at the community level.

A committee comprised of communicable disease staff and representative stakeholders will assist us with this endeavor. Our first meeting has been scheduled for November 4, 1998, to review findings and to provide direction for further activities. Upcoming activities may include training, encouraging reporting by clinical laboratories and providers and developing an effective communication system to provide assistance in surveillance activities and outbreak investigations.

If you are interested in more information about this project, please feel free to contact either Karen MacMaster or Sonja Hrabowy at (517) 335-8165.

HANTAVIRUS UPDATE

Patty Clark, M.P.H.,
Viral Serology/Viral Isolation Unit

As of June 22, 1998, 185 cases of Hantavirus Pulmonary Syndrome (HPS) have been identified in 29 states. The distribution of HPS cases includes areas of western, eastern, southeastern and southern United States, including regions bordering Mexico and Canada. Most U.S. cases have been caused by infection with Sin Nombre virus (SNV). The primary rodent reservoir for SNV is the deer mouse (*P. maniculatus)* whose range includes the continental United States except the eastern seaboard and the Southeast.

The overall case fatality rate is 43.8%. However, the case fatality rate with onset since this disease was recognized in the U.S. continues to fall and is currently 33.3%. Early symptoms include fatigue, fever and muscle aches, especially the large muscle groups—thighs, hips, back, sometimes shoulders. These symptoms are universal. There may also be headaches, dizziness, chills and/or abdominal problems, such as nausea, vomiting, diarrhea and abdominal pain. About half of all HPS patients experience these symptoms. Late symptoms (4 - 10 days later) include coughing and shortness of breath.

There have been no confirmed cases of HPS in Michigan to date, although Wisconsin, Illinois and Indiana have each had 1 confirmed case. Hantavirus IgG and IgM testing has been available at the Michigan Department of Community Health since April, 1996. However, the numbers of samples tested remains small. Samples are tested using an enzyme linked immunoassay for IgG and an IgM capture ELISA. The acute specimen should be drawn near admission. A second sample should be drawn as late as possible, no later than 21 days after the acute. Single serum samples are accepted. A sample volume of 2.5 ml of serum is the preferred amount. It will be necessary to submit a further sample for confirmation testing if antibodies are detected initially.

Questions regarding specimen submission or testing should be directed to Patty Clark at (517) 335-8102.

Prevention of False-Positive Test Results in Mycobacteriology

The number of people with active tuberculosis in the United States increased steadily from 1985 until 1992. Even though this rise of tuberculosis has been brought under control, it has heightened our awareness of the importance of timely and accurate laboratory testing. Because of this heightened awareness, more laboratories are processing an increasing number of specimens. As more specimens are processed, the risk of carryover of organisms from positive to negative specimens increases.

Critical attention must be given to all laboratory testing to assure that spurious results are not obtained. Laboratorians must know at what points in the testing process contaminants can be introduced or where problems could occur leading to a false-positive report. The chart on page 4 outlines steps for preventing these false-positive results.

Steps to Prevent False-Positive Test Results in Mycobacteriology [1]

Testing Steps	Critical Factors	Keys for Success
Specimen collection	integrity of specimen	• ensure proper sterilization of bronchoscope • use sterile collection containers, equipment • use sterile reagents • follow provided directions for collection • make timely shipment to laboratory
Specimen receipt and log-in	correct patient information	• call submitter if records not complete
	correlation between specimen and record	• use fail-safe specimen identifiers, e.g. bar codes • double check entries
Processing the specimen	safety	• use certified BSC • follow biosafety manual • use disinfectant-soaked towel in BSC • use safety carriers for centrifugation • wear personal protective equipment
	sterile reagents	• use AFB-free water • use single use containers
	technique	• practice techniques • work with only one sample at a time • avoid producing splash-backs and aerosols
	specimen management	• process known positive specimens last • do not use AFB-spiked controls
AFB microscopy	slides	• only use once • clean with 70% ETOH, if needed
	slide labeling	• use only pencils, bar codes, or other methods that don't flake or come off during staining • make sure that identifiers can easily be traced back to patient
	staining	• do not bulk stain • separate slides on staining rack • use rinse water free of AFB
	reagents	• to monitor and document free of AFB
Isolation	media/specimen correlation	• label media precisely
	aerosol production	• use only syringes with permanently attached needles
	testing sample integrity	• open only one container at a time • swab each septum bottle if appropriate • follow manufacturer's instructions for using testing equipment
	usual growth patterns	• be aware of cultures with fewer that 10 colonies, or late appearing clusters of positives, or unusual patterns of drug resistance • notice increases in recovery of contaminants
Identification	isolate purity	• streak broth cultures for purity check • make certain results correlate with colony morphology, other test results and clinical picture
Entering results into patient record	accuracy	• double check entries
Reporting results	communication	• develop good ties with medical team • use electronic transmission to speed reporting

[1] Videotape: *Recognition and Prevention of False-Positive Test Results in Mycobacteriology*, Association of State and Territorial Public Health Directors and Centers for Disease Control and Prevention, June 1997.

QUIRKY BUGS...

Challenging Respiratory Isolates From CF Patients

Stephen Haskell, BS, MMS (ASCP) and
Sandip Shah, MS, MT (ASCP)
Reference Bacteriology Unit

Cystic Fibrosis (CF), an inherited disorder affecting the outward-secreting glands of the body, is the most common life-shortening inherited disease in the United States. It affects about 40,000 Americans and about 70,000 people worldwide. According to the Cystic Fibrosis Foundation (CFF) one out every 3,300 newborns will be diagnosed with CF resulting in about 1,000 cases of CF per year in the United States. Just a decade ago, the majority of children with CF died in their teens. Today the median survival age is about 31.3 years

Cystic Fibrosis was first described in 1938 by Dorothy Andersen, M.D., of Columbia University. CF is characterized by the production of thick, sticky mucus that obstructs the respiratory tract. Around 90% of the illnesses associated with CF involve the respiratory system. Chronic lung infection is common and occurs when mucus production prevents the clearance of bacteria. As the bacteria multiply and grow, the mucus thickens causing the airways to become infected and inflamed. In most cases, the lung infection causes gradual destruction of the tissues of the respiratory system. CF can also affect other areas of the body including the pancreas, reproductive organs and sweat glands. It was not until 1989 that scientists discovered a genetic marker for CF. This gene regulates the flow of sodium and chloride ions across cell membranes. It is the inability of the cell to secrete chloride and take in sodium that causes excessive salt in perspiration.

In the mid 1980's *Burkholderia cepacia* was recognized as an important agent of lung disease in CF patients. Once an individual with CF becomes infected with *B. cepacia* they rarely resolve as this organism is usually not eradicated. CF patients with *B. cepacia* become social and medical outcasts because of the concern about the spread of this organism. From time to time isolates obtained from CF patients are received at MDCH in the Reference Bacteriology Unit for identification, characterization or further studies. Most are identified as *B. cepacia*. Recently, MDCH participated in a study of new antimicrobial agents against *B. cepacia*. Seventy-three isolates collected from the sputum of CF patients throughout Michigan were studied. Ceftazidime was the most active antibiotic with almost 92% of the isolates susceptible. Mezlocillin, piperacillin, ciprofloxacin, cefpirome and desacetylcefataxime had moderate activity. Loracarbef, cefixime, cefprozil, cefmetazole, cefepime, fleroxacin, cefpodoxime, tobramycin and amikacin had no activity against *B. cepacia*.

Typical *B. cepacia* is described as Gram negative straight or slightly curved rod; motile (polar tuft of three or more flagella); or ferment glucose, xylose, mannitol, lactose and maltose; usually lysine decarboxylase-positive, arginine dihydrolase-negative; grows on MacConkey agar; sometimes reduces nitrate, without gas. But some of the isolates received at MDCH for identification are frequently atypical and therefore not identifiable by traditional methods. One such Gram negative rod similar to *B. cepacia* and CDC group WO-2, and isolated from sputum cultures, is often submitted for identification. Its clinical significance has not been established. Its colony morphology is similar to *B. cepacia* but the biochemical and cell wall fatty acids content are different. This organism differs from *B. cepacia* by its inability to produce acid from lactose, xylose and maltose. Its cell wall fatty acid profile resembles that of CDC group WO-2 with minor differences.

Discussion

Burkholderia cepacia has emerged as a potential pathogen in patients with CF since the early 1980s. It has been placed in the *Burkholderia* genus recently, along with other *Pseudomonas* homology group II species. This species was also known as *Pseudomonas cepacia*, *Pseudomonas multivorans*, *Pseudomonas kingii* and CDC group EO-1. While most strains are non-pigmented on common laboratory media, some strains produce growth with chartreuse pigment. On solid media, the surface growth dies out quickly and survives disinfection with quaternary ammonium compounds. The treatment of *B. cepacia* infections in patients with CF or with compromised immunity remains a challenge. Despite the availability of effective agents, the development of resistance continues to present difficulties in treatment, even with the development and availability of new antimicrobial agents. Ceftazidime, a third generation aminothiazole cephalosporin, seems to be the most effective drug observed in the in-vitro studies.

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Kumar A. et al, Chemotherapy. 1992;38:319-323.

Http://www.madpartners.com/therapeuticservices/cysticfibrosis.htm

HELLO!

MDCH Laboratory Welcomes Sherry Todd EID Training Fellow

The Bureau of Laboratories would like to introduce Sherry Todd. Sherry began a one-year stint as an Emerging Infectious Disease (EID) Training Fellow on October 5, 1998. Established by the Association of Public Health Laboratories (APHL), the goal of the Emerging Infectious Diseases (EID) Laboratory Fellowship Program is to prepare laboratory scientists for careers in public health. This program is intended to recruit and train qualified candidates, at both the bachelors and masters level, to support public health initiatives and conduct high priority infectious disease research in public health laboratories. An outcome of the Fellowship is to accomplish one of the Centers for Disease Control and Prevention's (CDC) defined prevention strategy goals of "strengthening local, stagehand federal public health infrastructures to support surveillance and implement prevention and control programs."

Prior to starting her EID fellowship, Sherry supervised a physician office laboratory (POL) in Merrimack, New Hampshire. She is married to a helicopter pilot and has a daughter currently living in Phoenix, a son in graduate school at Case Western and a dog. Her professional career as Medical Technologist (ASCP) has spanned over 20 years in a variety of settings including hospital labs, reference labs and a state public health lab. Feeling the need to become more familiar with new technology, Sherry returned to college to update her knowledge and become better acquainted with recent technological changes in diagnostic assays. While enrolled in graduate genetics and bioinformatics classes, she read of the EID fellowship program and applied to the program while also submitting applications for graduate school.

Sherry is working with her mentor, Dr. Jeff Massey, in the Molecular Biology Section. She will gain experience with techniques currently in use (PCR, PFGE, and RFLP) and other molecular techniques currently in development. She will be involved in a variety of research projects with the molecular staff. In addition, Sherry will attend weekly epidemiology meetings to see how the public health laboratory interacts with other public health professionals.

After completion of the program, Sherry plans to go to graduate school. In her spare time, she may be seen biking the streets of Haslett, cross country skiing or basket weaving.

GOODBYE!

MDCH Bureau of Laboratories Bids Farewell to EID Training Fellow

The Fellow speaks: Gregory Jennings PhD.
CDC/APHL Emerging Infectious Disease Research Fellow

As the end of my Emerging Infectious Disease (EID) fellowship rapidly approaches, I have been asked to recount some of my experiences at the MDCH. I arrived in Michigan in the fall of 1996 as an EID research fellow. The EID program is intended to provide opportunities for training in high priority infectious disease research in public health laboratories and to educate the fellows on the various issues confronting public health laboratories. In order to provide a wide variety of experiences, my training at MDCH Bureau of Laboratories was divided into a number of areas including management training, rotations through the various laboratory sections, research projects and participation in outbreak investigations.

One the reasons that I selected MDCH from a host of other potential assignments at CDC and other state health laboratories was the unique opportunity for participation in a variety of field and laboratory investigations. I have not been disappointed. My arrival at MDCH coincided with a *Legionella* outbreak in the Detroit area. This outbreak was soon followed by others involving, *E. coli* 0157:H7 linked to alfalfa sprouts, Hepatitis A associated with imported strawberries, a case of Lyme disease in north-central Michigan and the emergence of a vancomycin intermediate susceptible *Staphylococcus aureus* (GISA), the second documented case in the world and one that drew international attention. I have often been teased about the coincidence of my arrival and these outbreaks. Contrary to popular jest, there is no statistical or epidemiologic link.

Seriously, each of these outbreaks has illustrated for me important public health issues that are central to the EID fellowship. For example, both of the foodborne disease outbreaks were multi-state and one was international. They have served to emphasize the importance of food safety issues, particularly detection and identification of foodborne pathogens, both domestic and imported. The MDCH laboratory response to these events has also been highly instructive. The MDCH invited me to participate in the expansion of testing services to the regional laboratories. The ability to test specimens associated with food borne disease at a regional level should improve both recovery of pathogenic organisms as well as response times.

I have also learned much about the need for collaborative effort and information sharing between public health agencies. The detection of the GISA isolate and the seriousness of the response from both MDCH and CDC highlighted the increasing problem of antibiotic resistance in pathogenic bacteria and the need for ongoing surveillance and, where necessary, intervention.

The emerging infections program arose out of a need for individuals trained to recognize and respond to the changing nature of public health. I would like to thank Dr. Robert Martin, Dr. Frances Pouch Downes, Dr. Barbara Robinson-Dunn and Dr. Louis Guskey as well as the many laboratorians at the MDCH who have given me their valuable time and the training that I'll need in order to make a contribution.

TESTING FOR GISA

Barbara Robinson-Dunn, Ph.D., ABMM
Director of Microbiology

The emergence of isolates of *Staphylococcus aureus* with reduced susceptibility to vancomycin and teicoplanin (GISA) has made it necessary to conduct nationwide surveillance for this organism. The Hospital Infections Program at the Centers for Disease Control and Prevention in collaboration with the Emerging Infections Network of the Infectious Disease Society of America are promoting a Surveillance of Emerging Antimicrobial Resistance Connected to Healthcare (SEARCH). They are asking that isolates of *S. aureus* with reduced susceptibility to vancomycin or another glycopeptide be shipped directly to the state laboratory for antimicrobial susceptibility testing if that institution is capable of doing so.

This is a revision of previous instructions. In Michigan, all suspect GISA isolates are to be sent to the MDCH laboratory for confirmatory testing for resistance to the glycopeptides. When a laboratory suspects that they are working with this type of a resistant isolate, please contact MDCH immediately. When this call is received, directions will be given for submission of the isolate. The caller will be asked demographic information about the patient and about the type of antimicrobial susceptibility testing done in the local laboratory. For consultation, please contact Dr. Robinson-Dunn or Sandip Shah at (517) 335-8067.

MDCH Laboratories Introduces CD4+/CD8+ Testing

Deborah Stephens, MT (ASCP), HIV Unit

Effective November 1, 1998, CD4+/CD8+ enumeration will be offered by the MDCH Bureau of Laboratories. This service is limited to clients enrolled in the MDCH HIV/AIDS Drug Assistance Program, Medicaid and Children's Special Health Care Service clients or by special arrangement.

The precise quantitation of CD4+ and CD8+ T-lymphocytes plays an important role in the management of patients infected with Human Immunodeficiency Virus (HIV). The number of these cells populations in an infected individual serves as a widely accepted marker for immune system status and as a gauge for monitoring disease progression. Because decreasing CD4+ cell levels are associated with increasing opportunistic infections and malignancies, periodic monitoring by enumeration is essential to guide physicians in therapy choices and validating new treatment strategies.

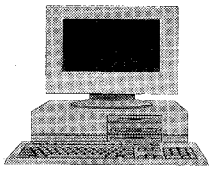
Current guidelines for the use of antiretroviral agents in HIV-infected adults and adolescents, as well as National Institutes of Health's panel to define principles of therapy of HIV infection, suggests the need for regular CD4+/CD8+ and viral load testing. Regular, periodic measurement of plasma HIV RNA levels **and** CD4+ T-cell counts is necessary to determine the risk of disease progression in an HIV-infected individual and to determine when to initiate or modify antiretroviral treatment regimens.

MDCH has acquired Microvolume Fluorimetry (Biometric Imaging, Mountain View, CA), a new propriety technology which provides precise and rapid CD4/CD8 counts by electronically analyzing laser-generated images of cells. This technology is the first fundamental advance in cellular analysis in two decades. This instrument provides precise absolute CD4+ and CD8+ counts across an analytical range of 2-2000 cells/μl.

The specimen required for CD4+/CD8+ testing is whole blood EDTA, which must be transported at room temperature. Testing must be completed within 48 hours of the time of collection so overnight delivery may be indicated. Specimens will be accepted for CD4+/CD8+ testing Monday-Friday, 7:00 A.M. to 3:00 P.M. (excluding state holidays). Specimens will be tested and reported the day received. Reports will be faxed to our fax reporting agencies by the end of the day the specimen is received.

The FB201 test requisition form now reflects both viral load and CD4+/CD8+ tests. For shipping components, viral load testing will remain Unit #3 and CD4+/CD8+ will be Unit #13. The new combined test request form will allow a choice of ordering viral load and/or CD4+/CD8+ . On the reverse side of the test request form you will find the instructions for the collection and submission for each of these tests. It is critical all directions are followed due to the strict limitations of each of these tests. They utilize two assays, different collection tubes, specimen handling, specimen temperatures, shipping instructions and testing days. In order to receive the containers, complete Form F389, Requisition for Diagnostic Specimen Containers. Indicate on the back of the F389, under miscellaneous requests, Unit #3 (Viral Load Testing), and/or Unit #13 (CD4+/CD8+ testing) the number of shipping containers requested and mail or fax the form to the address/fax number listed on the top of the form. To receive specimen container orders, phone (517) 335-9867.

Questions regarding enrollment in the ADAP program should be directed to Merry Gastambide at (517) 335-9333. For questions regarding technical/laboratory issues only, contact Deborah Stephens or Bruce Robeson at (517) 335-8098.



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